

6HS5 Norman L.Koren’s model-Triode mode

The triode is modeled using a set of 5 fitting parameters t_1, t_2, t_3, t_4, t_5 , along with the following equations:

$$E_1 = \frac{V_{ak}}{t_1} LN \left[1 + Exp \left[t_1 \left[\frac{1}{t_2} + \frac{V_{gk}}{(t_3 + V_{ak}^2)^{\frac{1}{2}}} \right] \right] \right]$$

If $E_1 > 0$

Then

$$I_a = \frac{E_1^{p_4}}{p_5}$$

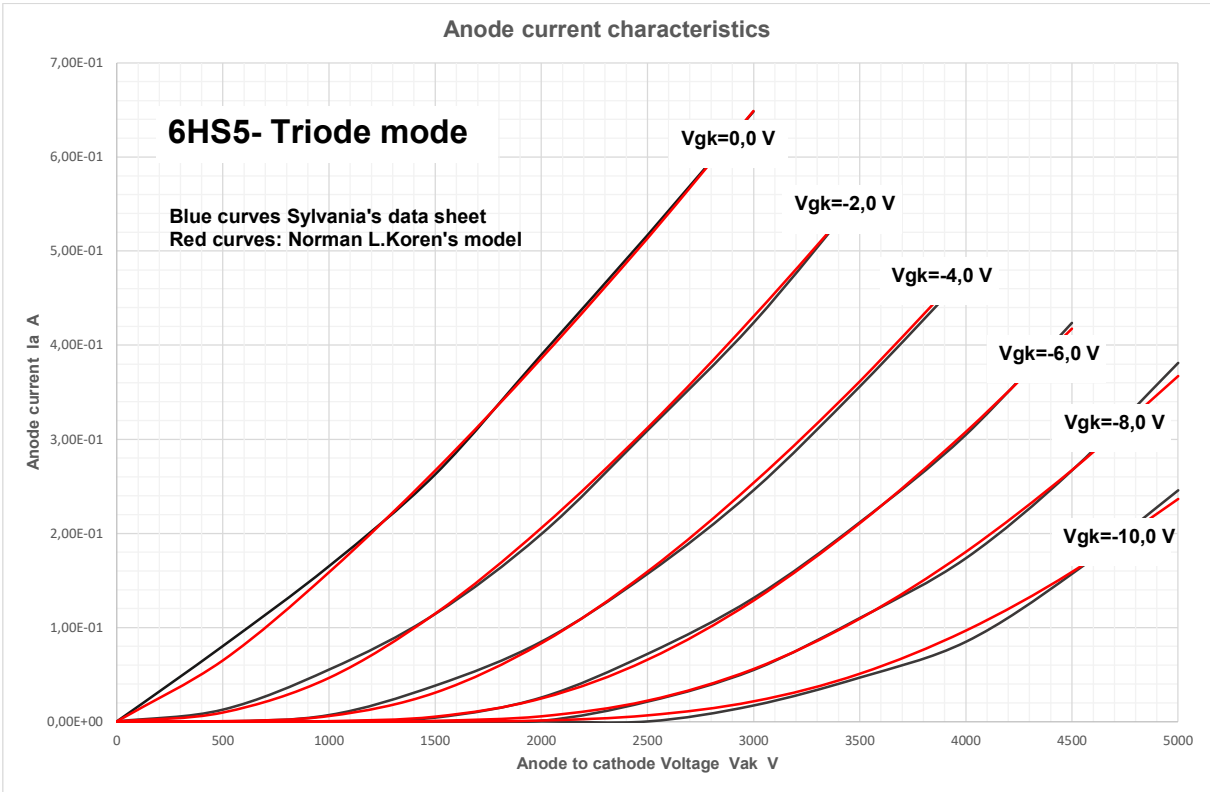
Else

$$I_a = 0$$

Parameter values used for the 6HS5 in triode mode

	t1	t2	t3	t4	t5
6HS5	1340	474	5,94E5	1,28	16, _

6HS5 Anode current characteristics



In LTspice, triode models are available. You just have to specify the value of parameters.

For the Koren model you normally have :

$$t1=kp, t2=\mu, t3=kvb, t4=Ex, t5=kg1$$

The Koren model is valid only for negative grid voltage and positive anode current.

To do that automatically, the Koren model is setup as follows :

$$E1=(Vak/kp)LN(1+EXP(kp(1/\mu+Vgk/(kvb+Vak^2)))).$$

$$Ia=(E1)Ex/kg1(1+sgn(E1))$$

With :

$$Sgn(E1)=-1 \text{ if } E1<0$$

$$Sgn(E1)=1 \text{ if } E1>0$$

It is this routine you have in LTspice. So, the value to enter for kg1 must be half the value I have determined.